

WHAT IS CLAIMED IS:

1. A disk array control apparatus comprising:

5 a first element constructed and arranged so that the first element calculates a cache hit ratio at a disk cache memory; and

a second element constructed and arranged so that the second element adjusts a number of tasks to be executed according to the calculated cache hit ratio.

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2. A disk array control apparatus comprising:

a first element constructed and arranged so that the first element calculates a cache hit ratio at a disk cache memory; and

15 a second element constructed and arranged so that the second element decreases a number of tasks to be executed when the calculated cache hit ratio is above a prescribed value and increases the number of tasks to be executed when the calculated cache hit ratio is below the prescribed  
20 value.

3. A disk array control apparatus comprising:

a first element constructed and arranged so that the first element calculates a cache hit ratio at a disk cache  
25 memory; and

a second element which executes only high priority tasks when the cache hit ratio is above a prescribed value and executes both the high priority tasks and low priority

tasks when the cache hit ratio is below the prescribed value.

4. A disk array control apparatus comprising:

5 a host I/O reception unit arranged so that the host  
I/O reception unit receives as an input an I/O process  
request from a host computer and analyzes the I/O process,  
the I/O reception unit generating as an output the I/O  
process request;

10 a high priority I/O process execution unit constructed  
and arranged to allow execution of high priority tasks;

a low priority I/O process execution unit constructed  
and arranged to allow execution of low priority tasks;

15 a cache hit determination unit constructed and  
arranged to determine whether or not the I/O process request  
is causing a cache hit at a disk cache memory;

a cache hit ratio monitor unit constructed and arranged  
to calculate and output a cache hit ratio within some period  
of time by using a determination result of the cache hit  
determination unit; and

20 an execution task selection unit constructed and  
arranged to allocate each said I/O process request to either  
the high priority I/O execution unit or the low priority  
I/O process execution unit, the execution task selection  
unit activating only the high priority I/O process execution  
25 unit when the cache hit ratio is not less than some prescribed  
value and activating both the high priority I/O process  
execution unit and the low priority I/O process execution

unit when the cache hit ratio is less than the prescribed value.

5        5. The disk array control apparatus as claimed in claim 4,  
further comprising:

        a task priority change unit constructed and arranged  
to dynamically change the low priority task to the high  
priority task after starting execution of the low priority  
task , the task priority change unit changing the high  
10       priority task to the low priority task at execution  
termination time.

6. A disk array control method comprising the steps of:  
        calculating a cache hit ratio at a disk cache memory;  
15       and  
        adjusting a number of tasks to be executed according to  
the calculated cache hit ratio.

7. A disk array control method comprising the steps of:  
20       calculating a cache hit ratio at a disk cache memory;  
        decreasing a number of tasks to be executed when the cache  
hit ratio is above a prescribed value; and  
        increasing the number of tasks to be executed when the  
cache hit ratio is not above the prescribed value.

25       8. A disk array control method comprising the steps of:  
        calculating a cache hit ratio at a disk cache memory;

executing only high priority tasks when the cache hit ratio is above a prescribed value; and

executing both high priority tasks and low priority tasks when the cache hit ratio is not above a prescribed value.

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9. A disk array control method comprising the steps of:

inputting an I/O process request from a host computer;

determining whether the I/O process request is causing a cache hit at a disk cache memory;

10 calculating a cache hit ratio within some period of time based on results of the determining step;

identifying the I/O process request as either a high priority task or a low priority task;

15 executing only high priority tasks when the cache hit ratio is not less than some prescribed value; and

executing both high priority tasks and low priority tasks when the cache hit ratio is less than the prescribed value.

10. The disk array control method as claimed in claim 9, further

20 comprising the step of:

changing the low priority task to the high priority task after starting execution of the low priority task, and changing the high priority task to the low priority task at execution termination time.

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